

**THE EFFECTIVENESS OF USING E-MARKETING TO PROMOTE
PRODUCT ON SALE FOR SUPERMARKET**

FADI YASSIN SALEM AL-JAWAZNEH

UNIVERSITI UTARA MALAYSIA

2009

**THE EFFECTIVENESS OF USING E-MARKETING TO PROMOTE
PRODUCT ON SALE FOR SUPERMARKET**

A Thesis Submitted to College Arts & Sciences in Partial

Fulfillment of the Requirement for the Degree Master

(Information Technology)

University Utara Malaysia

BY:

FADI YASSIN SALEM AL-JAWAZNEH



KOLEJ SASTERA DAN SAINS
(College of Arts and Sciences)
Universiti Utara Malaysia

PERAKUAN KERJA KERTAS PROJEK
(Certificate of Project Paper)

Saya, yang bertandatangan, memperakukan bahawa
(I, the undersigned, certify that)

FADI YASSIN SALEM AL-JAWAZNEH
(802046)

calon untuk Ijazah
(candidate for the degree of) **MSc. (Information Technology)**

telah mengemukakan kertas projek yang bertajuk
(has presented his/her project paper of the following title)

THE EFFECTIVENESS OF USING E-MARKETING TO PROMOTE
PRODUCT ON SALE FOR SUPERMARKET

seperti yang tercatat di muka surat tajuk dan kulit kertas projek
(as it appears on the title page and front cover of project paper)

bahawa kertas projek tersebut boleh diterima dari segi bentuk serta kandungan
dan meliputi bidang ilmu dengan memuaskan.
(that the project paper acceptable in form and content, and that a satisfactory
knowledge of the field is covered by the project paper).

Nama Penyelia Utama
(Name of Main Supervisor): **MR. ADI AFFANDI BIN AHMAD**

Tandatangan
(Signature) : 

Tarikh
(Date) : 17 MAY 2009

PERMISSION TO USE

In presenting this thesis of the requirements for a Master of Science in Information Technology (MSc. IT) from University Utara Malaysia, I agree that the University library may make it freely available for inspection. I further agree that permission for copying of this thesis in any manner, in whole or in part, for scholarly purposes may be granted by my supervisor or in their absence, by the Dean of College of Art and Sciences . It is understood that any copying or publication or use of this thesis or parts thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to University Utara Malaysia for any scholarly use which may be made of any material from my thesis.

Request for permission to copy or make other use of materials in this thesis, in whole or in part, should be addressed to:

Dean of College of Art and Sciences

University Utara Malaysia

06010 - Sintok

Kedah Darul Aman.

Abstract

In these days most supermarkets acknowledge the importance of SMS marketing and web in reaching and interacting with their customers. However, there is much discussion regarding the effectiveness when it comes to SMS marketing. this study helped the customers and sellers and willing to accept, reading and using SMS messages: effective is SMS marketing compared to traditional marketing communications. The goal of this study is to investigate the effectiveness of SMS promotion compared to traditional ways in marketing for different aspects and on the other hand, to develop prototype by using web and SMS technology to apply this system and extent consumers are willing to accept commercial messages on their mobile phone, since the effectiveness of SMS marketing highly depends on this willing. The results of this research indicate that the use of the web and SMS for the benefit of the seller and the buyer in all aspects instead using traditional ways in promotion.

By the Name of Allah, the Most Gracious and the Most Merciful

Acknowledgement

Firstly, I would like to express my deepest sense of gratitude to my supervisors **Adi Affandi Ahmad**, for patient guidance, encouragement, understanding, and excellent advice throughout this study.

I am deeply and forever indebted to the people in my life that touched my heart and gave me strength to move forward to something better. The people who inspire me to breathe, who encourage me to understand who I am, and who believe in me when no one else does. I dedicate this study to the mountain that bore all the storms and conditions for help my mother and my brothers and my sisters, to my brother **Dr. Fu'ad Yassin Al-Jawazneh** and Source of my light and my life to my mother **Um Fu'ad** and my brothers **Fahad (Abu Yassin), Forsan, Muath Dr. Safi, Ahmad, Yassin** and my sisters and to all my family in Jordan.

Finally, am also thankful to all my colleagues and friends especially from the Faculty of Information Technology for their help and support, with whom I shared pleasant times.

| | |
|---------------------------|------------|
| PERMISSION OF USE | I |
| ABSTRACT | II |
| ACKNOWLEDMENT | III |
| TABLE OF CONTENTS | IV |
| LIST OF TABLE | VI |
| LIST OF FIGURES | VII |
| LIST OF REFERENCES | VII |
| LIST OF APENDDEX | VII |

TABLE OF CONTENTS

CHAPTER 1 INTRODUCTION

| | | |
|-----|-------------------------|---|
| 1.1 | Introduction | 1 |
| | 1.1.1 Problem Statement | 5 |
| | 1.1.2 Research Question | 6 |
| | 1.1.3 Objectives | 6 |
| | 1.1.4 Scope of Study | 6 |
| 1.2 | Significance of Study | 7 |
| 1.3 | Conclusion | 8 |
| 1.4 | Thesis Outline | 9 |

CHAPTER 2 LITERATURE REVIEW

| | | |
|------|---|----|
| 2.1 | Introduction | 10 |
| 2.2 | WEB and WAP Definition | 11 |
| 2.3 | The WAP Protocol Stack | 12 |
| 2.4 | Mobile Phone in Communities | 14 |
| 2.5 | Mobile Phone in Malaysia | 14 |
| 2.6 | The Rapid Growth of The Mobile Phone | 15 |
| 2.7 | Mobile in Marketing | 16 |
| 2.8 | The Impact Of The Use Of E-Marketing On The Economy | 18 |
| 2.9 | SMS in Mobile Business | 18 |
| 2.10 | Usefulness Mobile Device in the Marketing | 19 |
| | 2.10.1 Advantage of this Method | 20 |
| | 2.10.2 The Benefits of This Method | 20 |
| 2.11 | Mobile Services with Tourism Guide | 21 |
| 2.12 | Mobile Applications with Transportation | 22 |
| 2.13 | Mobile with Other Applications | 23 |
| 2.14 | Conclusion | 24 |

CHAPTER 3 RESEARCH METHODOLOGY

| | | |
|-----|----------------------------|----|
| 3.1 | Introduction | 25 |
| | 3.1.1 Awareness of problem | 26 |
| | 3.1.2 Suggestion | 26 |
| | 3.1.3 Development | 27 |
| | 3.1.4 Evaluation | 27 |
| | 3.1.5 Conclusion | 28 |
| 3.2 | Conclusion | 29 |

CHAPTER 4 ANALYSIS AND DESIGN

| | | |
|-----|--|----|
| 4.1 | Introduction | 30 |
| 4.2 | Functional and Non-Functional Requirement | |
| | 4.2.1 Functional Requirement | 31 |
| | 4.2.2 Non-Functional Requirement | 32 |
| 4.3 | Use Case Diagram | 34 |
| 4.4 | Use Case Specification | |
| | 4.4.1 Use Case Specification for Login | 35 |
| | 4.4.2 Use Case Specification for The Manage customer | 36 |
| | 4.4.3 Use Case Specification for The Manage Promotion | 37 |
| | 4.4.4 Use Case Specification for Send Notifies Message | 38 |
| | 4.4.5 Use Case Specification for Manage Message | 39 |
| | 4.4.6 Use Case Specification for View Promotion | 40 |
| 4.5 | Sequence Diagram | |
| | 4.5.1 Sequence Diagram for Login | 41 |
| | 4.5.2 Sequence Diagram for Manage Customer | 42 |
| | 4.5.3 Sequence Diagram for Manage Promotion | 43 |
| | 4.5.4 Sequence Diagram for Delete Promotion | 44 |
| | 4.5.5 Sequence Diagram for View Promotion | 44 |
| | 4.5.6 Sequence Diagram For Notifies Message | 45 |
| 4.6 | Class Diagram | 46 |
| 4.7 | Development | |
| | 4.7.1 Online Promotion System Architecture | 47 |
| | 4.7.2 Hypertext Preprocessor | 48 |

| | | |
|-------|------------------------|----|
| 4.8 | System Test | |
| 4.8.1 | Login Page | 49 |
| 4.8.2 | Add New Promotion Page | 49 |
| 4.8.3 | Edit Promotion Page | 50 |
| 4.8.4 | Send SMS Page | 50 |
| 4.8.5 | Add New Customer | 51 |
| 4.8.6 | Edit Customer | 51 |
| 4.8.7 | Edit Account | 52 |
| 4.8.8 | SMS on customer mobile | 52 |
| 4.8.9 | WAP screen | 53 |

CHAPTER 5: DISCUSSION AND EVALUATION

| | | |
|-----|--------------------------|----|
| 5.1 | Introduction | 54 |
| 5.2 | Usability Testing Result | 54 |
| 5.3 | Conclusion | 57 |

CHAPTER 6: CONCLUSION

| | | |
|-----|--------------------------|----|
| 6.1 | Introduction | 58 |
| 6.2 | Conclusion of This Study | 58 |
| 6.3 | Study of Contribution | 59 |
| 6.4 | Problems and Limitation | 59 |
| 6.5 | Future Works | 60 |
| 6.6 | Conclusion | 60 |

LIST OF TABLES

| | | |
|-----------|---|----|
| Table 2.1 | Handphone users by nationality in Malaysia | 14 |
| Table 5.1 | Demographics data for Gender | 55 |
| Table 5.2 | Demographics data for age | 55 |
| Table 5.3 | Demographics data for marital status | 55 |
| Table 5.4 | The descriptive statistic for all the questions | 56 |

LIST OF FIGURES

| | | |
|-------------|--|----|
| Figure 2.1 | WAP Protocol Stack | 12 |
| Figure 3.1 | General Methodology Of Design Research | 25 |
| Figure 4.1 | Use Case Diagram For The Proposed System | 34 |
| Figure 4.2 | Use Case Specification For Login | 35 |
| Figure 4.3 | Use Case Specification For Manage customer | 36 |
| Figure 4.4 | Use Case Specification For Manage Promotion | 37 |
| Figure 4.5 | Use Case Specification For Send Notifies Message | 38 |
| Figure 4.6 | Use Case Specification For Mange Message | 39 |
| Figure 4.7 | Use Case Specification View Promotion | 40 |
| Figure 4.8 | Sequence Diagram For Login | 41 |
| Figure 4.9 | Sequence Diagram For Manage Customer | 42 |
| Figure 4.10 | Sequence Diagram For Add New Promotion | 43 |
| Figure 4.11 | Sequence Diagram For Delete Promotion | 44 |
| Figure 4.12 | Sequence Diagram For View Promotion | 44 |
| Figure 4.13 | Sequence Diagram For Notifies Message | 45 |
| Figure 4.14 | Class Diagram For The Proposed System | 46 |
| Figure 4.15 | WEP/SMS Architecture | 47 |
| Figure 4.16 | Login Page | 49 |
| Figure 4.17 | Add New Promotion Page | 49 |
| Figure 4.18 | Edit Promotion Page | 50 |
| Figure 4.19 | SMS Control | 50 |
| Figure 4.20 | Add New Customer | 51 |
| Figure 4.21 | Edit Customer | 51 |
| Figure 4.22 | Edit Account | 52 |
| Figure 4.23 | WAP screen | 52 |
| Figure 4.24 | SMS on customer mobile | 53 |
| Figure 5.1 | The Question High Agreement | 57 |

| | |
|--------------------|----|
| LIST OF REFERENCES | 61 |
|--------------------|----|

| | |
|------------------|----|
| LIST OF APPENDIX | 68 |
|------------------|----|

CHAPTER ONE

INTRODUCTION

1.1 INTRODUCTION

Marketing is set of institutions and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large (Lib, 2007). The term developed from the original meaning which referred literally to going to market, as in shopping, or going to a market to sell goods or services. Marketing as satisfying needs and wants through an exchange process (Kotler, 2000).

E-marketing, has become a far more powerful means of marketing in the world, there is also the cheapest of all solutions to the marketing of electronic and affordable now, we can double our sales and competition from the largest companies in our low costs (Burns & Bush, 2000). Target segment, which the public is willing and able to deliver advertising messages to target the customer's home, sitting in his home by his cell phone using SMS messages can also be an announcement of the product on sales or prices of new messages.

The contents of
the thesis is for
internal user
only

7 REFERENCES

- Abowd, D., Atkeson G., Hong, J. & Long, S. (1997). Cyberguide a mobile context-aware tour guide. Baltzer/ACM Wireless Networks.
- Ashok J. (2008). How will life change in the future mobile information society, another Opportunity for developing economies, Chennai, India, retrieved on 22 March 2009, by TeNeT Group.
- Baehr, C. (2007). Web Development: A Visual-Spatial Approach. Columbus:Prentice hall.
- Barbara, D. (1999). Mobile Computing and Databases –Survey. IEEE. Transactions on Knowledge and Data Engineering, 11(1) January/February (1999) 108–117.
- Barker, D., (2000) Requirements Modeling Technology: A Vision for Better, Faster, and Cheaper Systems. Computer Society. Retrieved: Feb 23, 2009. From: <http://www.ittc.ku.edu/Projects/rosetta/downloads/barker-viuf00.pdf> .IEEE
- Bhattacharyya, D. (1997). Mediating India: An Analysis of a Guidebook. Annals of Tourism Research 24(2):371-389.
- Bauer, H.H., Reichardt, T., Barnes, S.J. and Neumann, M.M. (2005). Driving Consumer Acceptance of Mobile Marketing: A Theoretical Framework and Empirical Study. Journal of Electronic Commerce Research 6 (3), 181-192.
- Bentley, L. D., & Dittman, K. C. (2001). System Analysis and Design Methods (5th ed.) Mc-Graw Hill: Boston.

Bhavnani, A., Chiu, R., Janakiram, S., Silarszky, P., & Bhatia, D. (2008). The Role of Mobile Phones in Sustainable Rural Poverty Reduction. ICT policy division global information and communications department (GICT).

Burns, A. & Bush, R. (2000) Marketing Research, 2nd Edition. Prentice Hall.

Cellular (2006) Global Mobile Customer Base Exceeds 2.6 Billion. Retrieved on: April 11, 2009. from: <http://www.cellular-news.com/story/20930.php>

Cheverst, K., Davies, N., Mitchell, K., & Friday, A. (2000). Experiences of developing and deploying a context-aware tourist guide: The Guide project. International Conference on Mobile Computing and Networking, Boston, ACM.

Craig, A. & John, D., (2004) Creating Web Services Using Asp.Net, CCSC: Rocky Mountain Conference

Darrell, B. (2008) Requirements modeling technology a vision for better, faster, and cheaper systems. Retrieved on: march 11, 2009. from: www.apl.jhu.edu/classes/notes/schappelle/704/requirementsmodeling.pdf.

Davies N., Mitchell K., Cheverst K. & Blair G. (1998). Developing context sensitive tourist Guide. In: Proceedings First Workshop on Human Computer Interaction with Mobile Devices.

Davis, (1989) Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *International Journal of Human-Computer Interaction*, vol. 7, pp. 57-70.

Dell, M. (2008). The Impact of Ecommerce on the World Economy In The New Millennium- Commerce Evolution On Modern Life. retrived on: March 23, from: <http://www.articlesbase.com/Internet-marketing-articles/-of-ecommerce-on-the-world-economy-in-the-new-millennium-commerce-evolution-on-modern-life-628019.html>

Dhann, S. (2001) Referencing: The Harvard referencing system Stockholm: School of Information and Communication, Department of Media Technology and Graphics Arts.

Ducoffe, & Robert, H. "Advertising Value and Advertising on the Web. Journal of Advertising Research". Vol. 36, No. 5, pp. 21-35, September/October 1996.

Dunham, M., et al. (1995). Mobile Computing and Databases: Anything New? SIGMOD Record, Special Section on Data Management Issues in Mobile Computing, 24(4): 5-9.

Durie, R. (2005) Marketing Guide"SME". Retrieved on: March 2, 2009. From: <http://www.aiia.com.au/docs/guides/SME%20Marketing%20Guide%202006.pdf>

Elalfy, E. (2005) A General Look at Building Applications for Mobile Devices. Distributed Systems Online. Retrieved on: March 24, 2009. from: <http://csdl2.computer.org/comp/mags/ds/2005/09/o9005.pdf>. IEEE.

Esato, (2006) Billion Mobile Phone Users in the World. Retrieved on: March 22, 2009 from: <http://www.esato.com/news/article.php?id=1365>).

Haig, M. (2002) Mobile marketing: The message revolution,cracking insight into how to really get personal with you customers.2002.

Heide B. (2003). Using Mobile Technology to Support eDemocracy retrieved on March14,2009.from:(<http://ieeexplore.ieee.org/iel5/8360/26341/01174324.pdf?arnumber=117324>

Hanson, W. (1999) Principles of Internet marketing. South-Western College Publishing Company.

Goto, K., & Kambayashi, Y. (2002). A New Passenger Support System for Public

Transport using Mobile Database Access. Proceedings of the 28th International Conference on Very Large Data Bases (VLDB 2002) (2002) 908–919.

IBM (2006). Websphere process server. From (<http://www-06.ibm.com/software/integration/wps/>).

Imielinski, T. & Badrinath, B.(2005). Mobile Wireless Computing - Challenge in Data Management, Communications of the ACM, 37(10) (1994) 18–28.

Introduction to Microsoft .Net Platform. (2008) Microsoft Internet Explorer, Accessed on Jan 12, 2009. From: <http://www.asp101.com/articles/nakul/intronet/default.asp>

Kavassalis, P. et al., (2003). Mobile Permission Marketing: Framing the Market Inquiry. International Journal of Electronic Commerce 8 (1), 55-79

Kirsten, (2009) SMS Marketing: Effective Way to Reach Target Users. Retrieved on March23,2009.From:website:http://www.streetdirectory.com/travel_guide/154697/marketing/sms_marketing_effective_way_to_reach_target_users.html

Koichi G. & Yahiko K., (2003) Integration of Electronic Tickets and Personal Guide System for Public Transport using Mobile Terminals, June 9-12, 2003, ACM.

Kushchu. & Kuscü, M. H. (2003) Mobile government (m-government) retrieved11Sep2008from<http://topics.developmentgateway.org/egovernment/rc/BrowseContent>.

Kotler, P. (2000) Business the ultimate resource, marketing management. city publishing house.p.924.

Kramer, R., & Modsching, M. (2005). Development and evaluation of a context-driven, mobile tourist guide. *International Journal of Pervasive Computing and Communication (JPCC)*.

Leppaniemi, M. (2008) *Mobile marketing Communications in Consumer markets*. Retrieved on: march 16, 2009. from: <http://herkules.oulu.fi/isbn9789514288159/isbn9789514288159.pdf>

Lib, A. (2007) *Definition of Marketing*, elmar: Electronic Marketing. December 24. Retrived on: March 12, 2008 from: [http://logistics.de/onlinemarketing.nsf/73D0ED36BE03145DC125745F002E6DC2/\\$File/critical%20marketing_advertising_e_commerce.pdf](http://logistics.de/onlinemarketing.nsf/73D0ED36BE03145DC125745F002E6DC2/$File/critical%20marketing_advertising_e_commerce.pdf)

MCMC (2007). *Facts & Figures, Statistics & Records*. Retrieved April 25, 2009. From: http://www.skmm.gov.my/facts_figures/stats/index.asp

Michael, A. & Salter, B. (2006) *Mobile Marketing, Achieving Competitive Advantage through Wireless technology*. BH, P.25 – 40.

Naismith, L., Lonsdale, P., Vavoula, G., & Sharples, M. (2004) *Literature Review in Mobile Technologies and Learning: Future lab Series*. Retrieved on: Jan 1, 2009, from: http://www.futurelab.org.uk/resources/documents/lit_reviews/Mobile_Review.pdf.

Nielsen, J. (1993) *Usability engineering*, Academic Press Limited, London, UKM Porteous.

Organization for the Advancement of Structured Information Standards (OASIS), (2004). *Introduction to UDDI: Important Features and Functional Concepts*. Whitepaper.

Patric, L. (2004). *Guidelines to Design a Web Page*. Canada: Wrox Press.

Paul, D., (2006) Fundamentals VB.NET retrieved on: Jan 1, 2005 from http://pdsa.com/Download/eBook/Preview_57.pdf.

Raffaele, B., Marco, C. & Enrico, G., (2005) Mesh Networks: Commodity Multihop Ad Hoc Networks. IEEE Communications Magazine, 43(3):123–131, Sep, 2008.

Ravden, S. & Johnson, G. (1989). Evaluating usability of human computer interfaces: a Practical method, Ellis Horwood Ltd., Chichester, UK.

Requirements Modeling. (2008) Retrieved On: Feb 3, 2009, from: www.ittc.ku.edu/Projects/rosetta/downloads/barker-viuf00.pdf.

Robbins, J. N. (2006). HTML & XHTML, 3rd Edition. Sebastopol: O'Reilly.

Rogers, M. (1983). Diffusion of innovations. 3rd Edition. New York.

Skolar,D. & Trachtenberg, A., PHP Cookbook.p.168-215.retrived on: Jan 11.2009.from: <http://www.oracle.com/technology/tech/php/pdf/ch08.pdf>

Scholz, H. (2008) SMS Marketing Para Pequenasy medianas empresas. Retrieved on: April 1, 2009.from: <http://www.mobile-zeitgeist.com/es/2008/01/26/sms-marketing-fuer-kleine-und-mittelstaendische-unternehmen/>

Singelee, D., & Preneel, B. (2005). The Wireless Application Protocol. International Journal of Network Security, 1(3), 161–165. Retrieved on: Feb 20, 2009. From:<http://ijns.femto.com.tw/contents/ijns-v1-n3/ijns-2005-v1-n3-p161-165.pdf>

Soriano, C. (2005) WAP and WML. For STR, recto. Tribiani.

Svanas D. (2001). Context-aware technology: a phenomenological perspective. Human-Computer Interaction 16: 379–400.

Tanakinjal, H. G., Deans, R.K. & Gray, B. (2007). Management of Permission-Based Mobile Marketing Diffusion. International Journal of Business and Management, Vol. 2, No. 6, pp. 52-59. Retrieved on March 4, 2009. from: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1083839

Vaishnavi, V. & Kuechler, B. (2007) Design research in Information Systems. Retrieved on: Jan 19, 2009. From: <http://www.isworld.org/Researchdesign/drisISworld.htm>.

Wang, S. H. & Wang, H. (2005) A location-based business service model for mobile commerce. International Journal of Mobile Communications, Volume 3 no:4, p:339-349. Retrieved on: March 3, 2009. from: <http://inderscience.metapress.com/link.asp?id=gr59dtwluel3mg3p>

WAP Forum, (2001) WAP Architecture. Wireless Application Protocol Architecture Specification. WAP-210-WAPArch-20010712. Retrieved on: Jan 25, 2009, from <http://www.openmobilealliance.org/tech/affiliates/wap/wap-210-waparch-20010712a.pdf>.

WAP Forum. (2000). Wireless Application Protocol White Paper. Retrieved on: Jan 16, 2009. from http://www.wapforum.org/what/WAP_white_pages.pdf

Wireless Application Protocol (2008), retrieved on: March 1, 2009. From: http://en.wikipedia.org/wiki/Wireless_Application_Protocol.

Zerzelidis, A., & Wellings, A. (2005). Requirements for a Real-Time .NET Framework, Feb 2005, ACM.